TIER2 Enhancing Trust, Integrity and Efficiency in Research through next-level Reproducibility

KNOW Center

WP3 – Concept, evidence, synthesis and recommendations

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WP3 overview

- Objectives
  - Provides the methodological & conceptual framework for TIER2; map existing evidence; co-create recommendations at project end.
- List tasks in WP
  - Task 3.1 Conceptual framework for reproducibility across contexts
  - Task 3.2 Evidence-base and inventory of reproducibility tools and practices
  - Task 3.3 Synthesis and recommendations
- Contributors
  - *KNOW, AU, Charite, UOXF, VUmc*
- Running time: M1-M36

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Task 3.1 - some issues!

- Methodological reform (movements) often move faster in one direction than the knowledge base warrant
- Is 'reproducibility' a reliable demarcation?
  - Confirm 'true' findings
  - Make 'research process' more transparent
- Clearly many knowledge production modes produce situated finding with multiple interpretations which are still considered 'true' or 'valid' despite being non-reproducible
- False claims can be reproducible!

- Reform needs conceptual clarification and theory --> sufficient conditions
  - Risk of promoting mistakes, over-generalization and forcing 'solutions' on KPM that do not need them (cost-benefit)

Task 3.1 Conceptual framework, Task description

- Task objectives
  - Conceptual analysis of 'reproducibility' framed in relation to 'knowledge production models' (epistemic diversity)
  - Map (matrix) contextual factors to various dimensions of ‘reproducibility’, as well as pertinent framework conditions that may affect the uptake of reproducibility practices
    - Enabling analyses of diverse conceptions, roles & barriers of reproducibility & permits identification of relevant & targeted tools, irrespective of fields
- Task main methods
  - Analytical desk research (develop/use 'epistemic contexts' as typology)
  - Analyses of discourses (literature mapping)
  - 5 focus-groups with co-creation communities

Map of science

Restricted discourses

Task 3.1 – Timelines, Deliverables & Milestones

- Task timeline
  - M1-3 Develop analytical & search strategies, envision & set-up of focus-groups
  - M4-6 Analyses and mapping, as well as doing focus group studies
  - M7-8 Write-up conceptual framework
- Deliverables and Milestones
  - MS3.1 Conceptual framework for reproducibility across contexts (initial scoping report, M8)
  - D3.1 Reproducibility Impact Pathways: State-of-play on methods, tools, practices to increase reproducibility across diverse epistemic contexts (combines findings from T3.1/3.2) (KNOW, M12)

Task 3.1 – Key challenges and immediate priorities

- Key challenges
  - Conceptual clarifications
  - Scope: level of detail regarding what matters for 'reproducibility' in which context
  - How to present the vast reproducibility landscape
  - Who to include in the focus groups: e.g. which competences, disciplines, locations? In other words, how do we represent and address the interrelations between reproducibility and epistemic diversity in the focus groups?
- Immediate priorities
  - Create a reproducibility landscape with disciplinary (field of research) clusters
  - Map out the pertinence, meanings and purposes of 'reproducibility' in different epistemic cultures - 'sufficient' conditions
  - Decide on the criteria for the potential participants in the focus groups

Task 3.1 – Interrelation with other tasks, WPs & partners

- Discussion with Leonelli about her approach
- Much of the work in this WP is basic and does not depend on others – although benefits could be gained from collaborating with the scoping review and perhaps similar approaches in OSIRIS
- Conceptual framework should be discussed when draft is presented

Task 3.1 – Discussion points

- How should we present the conceptual framework to make sure that it is the most useful for the following tasks?
- Some clarification among us concerning 'reproducibility' - not necessarily a panacea, do we consider ourselves as a 'movement'?
- Conceptual framework as a typology that:
  - 1) defines, 2) clarifies the pertinence, and 3) relates 'reproducibility' to various dimensions, based on essential 'knowledge production models', in order to identify necessary and sufficient conditions

Task 3.2 – Evidence-base and inventory of reproducibility tools and practices (M1-M12; KNOW [lead], AU, Charite, UOXF)

- Task objectives
  - Consolidate knowledge on practices & tools for reproducibility (evidence mapping)
    - Inventory tools & practices
    - Synthesise knowledge on efficacy across epistemic contexts
- Task main methods
    - Scoping Review (PRISMA-SCR) to systematically search academic databases & grey literature (including EC project outputs, policy documents, & tool registries)
    - FAIRsharing to collect/visualize the reporting standards & best practices within the EOSC science clusters (in particular EOSC-Life & SSHOC) and disciplines

Task 3.2 – Timelines, Deliverables & Milestones

- Deliverables and Milestones
  - D3.1 Reproducibility Impact Pathways: State-of-play on methods, tools, practices to increase reproducibility across diverse epistemic contexts (combines findings from T3.1/3.2) (KNOW, M12)
- Task timeline
  - M1-2 Decide scope (specific disciplines, what is done by us/OSIRIS?), prepare protocols
  - M3-9 Data collection, data charting, synthesis
  - M10-12 Write-up

Task 3.2 – Key challenges and immediate priorities

- Key challenges
  - *Scope – there is really so much that we could include here. Need to be strategic – where can we build on work by others; where can we work together with OSIRIS*

- Immediate priorities
  - *Decide on scope – which disciplines, which levels of detail are required for success in other tasks?*
  - *Inventory of tools/interventions esp. needed for WP4*

Task 3.2 – Interrelation with other tasks, WPs & partners

- *Key interrelation with OSIRIS, who have a very similar task that follows the same timeline*
- *Tool/intervention inventory a key inputs for WP4, Tasks 1 (Scoping) and 2 (Development)*
- *Outputs will form content for Reproducibility Hub*

Task 3.2 – Discussion points

- *What is our disciplinary scope? Need to narrow down beyond soc, life, comp sci?*
- *What level of detail is necessary for others task from the tools/practices/interventions scoping? What is feasible within resources?*

Task 3.3 – Synthesis and recommendations (M13-M36; KNOW [lead], AU, VUmc)

Task objectives

- Synthesise findings from across the project to revise knowledge of reproducibility Impact Pathways based on the learning and evidence from WPs 2, 4 and 5
- Create a coherent vision for future action, building on synthesised findings and stakeholder co-created policy recommendations

Task 3.3 - Methods

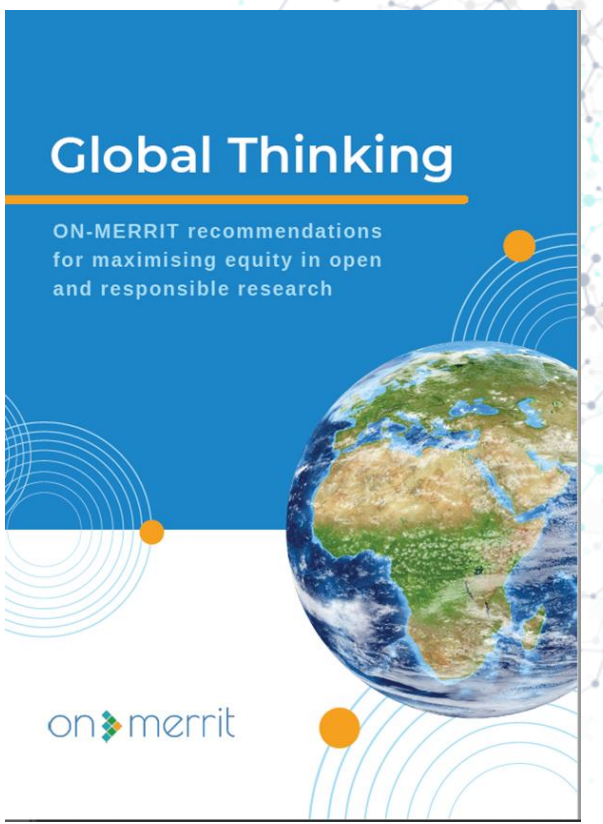
- **Synthesis**
  - Review & synthesise project outputs (desk research), In tandem with online consortia workshops (x 2) to distinguish main findings and implications
- **Recommendations**
  - Co-creative modified Delphi method (as used in ON-MERRIT)
  - Minimum 3 stakeholder workshops, plus iterative rounds of online survey, plus one final validation workshop

Task 3.3 – Timelines, Deliverables & Milestones

- Deliverables and Milestones
  - MS3.2 Interim synthesis of findings on reproducibility gains and savings (M28)
  - D3.2 Validated key impact pathways for reproducibility, including recommendations (KNOW, M36)
- Task timeline
  - *M13-M25: Ongoing activities to monitor TIER2 outputs for major conclusions/findings*
  - *M26: First consortium synthesis workshop to discuss major findings and their implications*
  - *M27: Write-up findings for MS3.2*
  - *M28-29: Preliminary activities for Delphi process (identify stakeholders, define key challenges, distill first inputs)*
  - *M30-33: Delphi process with stakeholders*
  - *M34: Second workshop on synthesis of findings (consortium + experts)*
  - *M30-M35: Write-up D3.2*

Task 3.3 - Example

- ON-MERRIT Recommendations
- Co-created with stakeholders
- Four priority areas for action:
  - Resource-intensity of Open Research
  - Stratification of OA publishing
  - Societal inclusion in research and policy-making
  - Reform of reward and recognition
- https://zenodo.org/record/6276753



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Toward equitable open research: stakeholder co-created recommendations for research institutions, funders and researchers

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Task 3.3 – Key challenges and immediate priorities

- Key challenges
  - How to synthesise such diverse findings – need to incorporate some elements of comparability into pilot evaluation processes (link to WP4)
  - Defining stakeholders for Delphi process
  - Delphi workflow is well-developed and works (will also be used in PathOS project and further lessons will be learned there)
- Immediate priorities
  - *N/A*

Task 3.3 – Interrelation with other tasks, WPs & partners

- Synthesis will build on all other project tasks (esp. results from WP4)
  - Dependency in terms of other tasks needing to deliver results on time
- All partners needed to support synthesis via workshop attendance
- Support for Delphi process from WP2 (co-creation) needed

Task 3.3 – Discussion points

- *How best to synthesise and prioritise TIER2 findings, especially to identify distinct issues for the recommendations phase?*
- *Do we agree with the approach of analysis of deliverables plus workshops?*
- *To what extent do we need a combined approach to, e.g., assessment of pilots, to enable comparability?*

Thank you!

TIER 2

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